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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,222	06/26/2001	Keiji Takahashi	P 281490 60303-US-SUS	8573

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EXAMINER

CUEVAS, PEDRO J

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 07/31/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,222

Applicant(s)

TAKAHASHI ET AL.

Examiner

Pedro J. Cuevas

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Drawings

1. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Voltage Regulator Of Vehicle AC Generator Having Variable Bypass Circuit Resistance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,493,202 to Iwatani et al.

Iwatani et al. clearly teaches the construction of a voltage regulator of a vehicle AC generator including a field circuit having a field coil and a plurality of magnetic poles and a output circuit having an armature coil, said voltage regulator comprising:

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first means, connected to said armature coil, for detecting a self-excited voltage that is induced in said armature coil by a residual magnetic flux of said rotor, comprising:

a power drive circuit including a pulse conversion circuit for converting said self-excited voltage into a binary pulse signal,

said power-drive circuit supplies electric power to said power circuit according to said binary pulse signal,

detects a voltage level of said self-excited voltage, and

detects the frequency of said self-excited voltage;

second means for supplying field current to said field coil when said self-excited voltage is detected, comprising:

a control circuit for controlling said field current, and

a power circuit connected to said control circuit; and

third means, including a bypass circuit connected to a ground, for decreasing resistance of said bypass circuit when said second means does not supply field current and increasing said resistance of said bypass circuit when said second means supplies field current to said field coil, and comprising:

a switching circuit connected to said bypass circuit;

a circuit for decreasing said resistance of said bypass resistor after increasing said resistance for a predetermined duration.

6. With regards to claim 5, Iwatani et al. disclose an armature coil of an AC generator which includes a plurality of phase-windings; and said pulse conversion circuit comprises a number of comparators respectively connected to the same number of said phase-windings to convert said

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self-excited voltage into a binary pulse signal having the same number of times as many frequencies as said self-excited voltage.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,493,202 to Iwatani et al. in view of U.S. Patent No. 5,550,457 to Kusase et al.

Iwatani et al. disclose the construction of a voltage regulator of a vehicle AC generator, said AC generator including a field circuit having a field coil and a plurality of magnetic poles, an output circuit having a plurality of phase-windings and a rectifier unit for providing DC output power, said voltage regulator comprising:

- a switching circuit for controlling field current to be supplied to said field coil;
- a switch control circuit for controlling said switching circuit; and
- a power circuit connected to said switch control circuit.

However, it fails to disclose a power-drive circuit which:

forms said pulse signal having two times as many frequencies as a frequency of said output voltage from a pair of said phase-windings whose phases are 90° different from each other and drives said power circuit when said rectifier unit provides an output voltage that is higher than a predetermined voltage;

includes a pulse conversion circuit for converting said self-excited voltage into a binary pulse signal; and

has a switch for opening or closing a circuit connecting said battery and said power line;

said drive circuit driving said power circuit for a predetermined period from an edge of said pulse signal.

Kusase et al. teach the use of a pulse conversion circuit (3) which:

forms said pulse signal having a plurality of times as many frequency as a frequency of said output voltage for converting said self-excited voltage into a binary pulse signal;

forms said pulse signal having two times as many frequencies as a frequency of said output voltage from a pair of said phase-windings whose phases are 90° different from each other and drives said power circuit when said rectifier unit provides an output voltage that is higher than a predetermined voltage;

includes a pulse conversion circuit for converting said self-excited voltage into a binary pulse signal; and

has a switch for opening or closing a circuit connecting said battery and said power line;

said drive circuit driving said power circuit for a predetermined period from an edge of said pulse signal for the purpose of providing A/D conversion of imputed voltages V_p , V_B and V_{IG} respectively, and outputted pulse voltages V_{g1} through V_{g6} .

It would have been obvious to one skilled in the art at the time the invention was made to use the pulse conversion circuit disclosed by Kusase et al. on the voltage regulator of a vehicle AC generator disclosed by Iwatani et al. for the purpose of providing A/D conversion of imputed voltages and outputted pulse voltages.

Conclusion


9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (703) 308-4904. The examiner can normally be reached on M-F from 8:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R. Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Pedro J. Cuevas
July 27, 2002


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